



Ms. 9  
151 South 2<sup>d</sup> St.  
Paper March 7<sup>th</sup> 1828

An Essay  
on  
Empyema

For the degree of Doctor of Medicine on the  
University of Pennsylvania

by  
Andrew Barclay  
of  
Virginia

14th January 1827.

Sept. 1. 1831

Providence

Dear Sir

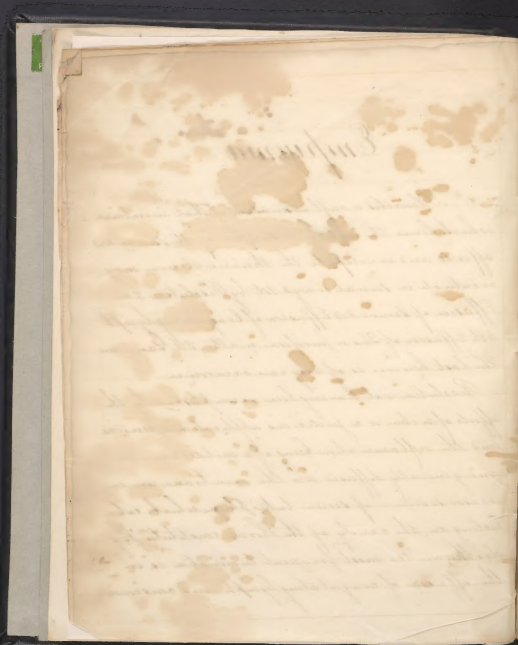
I have the honor to acknowledge the receipt of your letter of the 27th inst.

and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.

## Empyema

Pleuritis or inflammation of that membrane which lines the internal surface of the Thorax and affords an envelope to the thoracic viscera, may terminate in several ways. 1<sup>st</sup> by Resolution 2<sup>nd</sup> Effusion of serum 3<sup>rd</sup> Effusion of coagulating lymph 4<sup>th</sup> Effusion of Pus or puriform matter 5<sup>th</sup> Gangrene The last, however is of very rare occurrence.

Resolution not having been accomplished by the efforts of nature or a judicious application of remedies and the inflammation being of a mild character and generally diffused over the membrane an increased secretion of serum takes place, which collecting in the cavity of the Thorax constitutes Hydropothorax. The most frequent termination is, in the effusion of coagulating lymph and consequent



adhesions between the Pleura of the containing  
and contained parts, but the inflammation being  
of a higher grade, suppuration is induced forming  
Empyema, in which affection I propose offering  
a few remarks as the subject of an inaugural  
dissertation.

### Section 1st

The term Empyema is derived from *em* and  
*pus* which signify *pus within*, and was used by  
the ancient cultivators of medical sciences to ex-  
press merely an internal suppuration, without  
regard to the part of the body in which it occurred.  
By Aëtius, however, who flourished about the end  
of the fifth century, its application was limited  
to a collection of pus within the cavity of the Tho-  
rax, and since that period it has been used exclu-  
sively in this sense.

Most commonly the disease is confined to one

P

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sides of the chest, tho' sometimes both sides are implicated constituting a Double Empyema. a condition as dangerous to the patient as it is discouraging to the practitioner of the healing art.

### Section 2<sup>nd</sup>.

The commencement of Empyema is indicated by lassitude, coldness of the extremities and rigors of the trunk which in a few hours are succeeded by a preternatural degree of heat of the body that continuing for a longer or shorter period gradually abates. The patient passes restless nights his extremities often feeling cold and his body covered by a profuse clammy perspiration. There is a cough that is hard and dry or attended with a mucous expectoration. The pulse is full and accelerated and the tongue covered with a white fur.

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Chapter I

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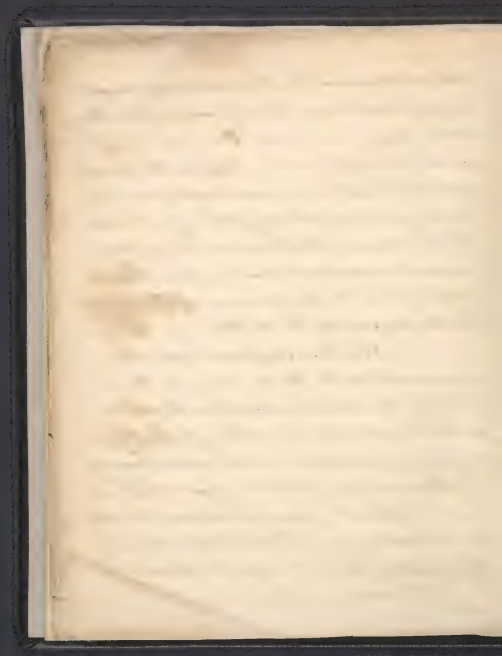


The suppurative process being now fully estab-  
lished, and the matter beginning to accumu-  
late, there is a sensation of weight at the scro-  
ticulus cordis and occasional slight dysp-  
noea. These become more distressing as the flu-  
id increases in quantity, which having occur-  
ed to a considerable extent, a fluctuation is  
perceptible, not only to the patient, but to persons  
standing by, on any sudden movement in the  
position of the body. This fluctuation becomes  
daily more evident and ascends until it can  
be distinguished above the superior margin  
of the clavicle. That side of the Thorax becomes  
protrusively expanded, the intercostal spa-  
ces becoming wider and oedematous. The oede-  
ma is not confined to the intercostal spaces  
extending sometimes over the whole of that side  
of the body on which the disease is situated, or  
to parts more or less remote, as to the Eye.

The following is a list of the names of the  
persons who have been admitted to the  
membership of the Society since the  
last meeting. The names are given in  
the order in which they were admitted.  
and a certificate was given to each of them.  
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lid or Externities. The shoulder becomes conspicuous & elevated and the difficulty of breathing is now almost intolerable. There is an inability in the part of the patient to lay on the sound side, and he experiences considerable pain on attempting to elevate the arm of the affected side. The pulsations of the Heart are felt, in some cases, at a considerable distance from the usual point, from the displacement of this organ by the pressure of the matter.

All these symptoms become more aggravated as the disease advances, till finally by the ulceration & absorption, the matter is discharged externally or through the Pleura by expectoration; or death ensues from suffocation, unless an outlet be afforded the fluid by an artificial opening. Sometimes the matter is absorbed, and the chest contracting by the ascent of the Diaphragm, the descent of



the shoulder and the approximation of the ribs to each other, the Lung is brought in contact with the parietes of the Thorax, between which adhesions take place and a natural cure is thus effected.

This is the usual mode of accession, progress and termination of this affection; tho' it is possible for a considerable quantity of pus to exist in the Thorax, without giving rise to any symptoms sufficiently distinctive to indicate its presence.

### Section 3rd.

The most ordinary cause of this affection is the influence of cold, to which the contents of the Thorax are peculiarly exposed, and hence it is most frequently met with in North ern climes, and particularly, those subject to sudden changes in the temperature of the



atmosphere.

It may result also from violence of any kind done the chest, as wounds, blows &c. as well as from extraneous bodies, as bullets, pieces of cloth, fractured or exfoliating ribs, entering the Thorax from the receipt of a wound by which inflammation is induced and perpetuated, while the wound heals, externally, the escape of the matter is prevented. The Pleura may participate in an inflammation primarily seated in the substance of the or be induced by the discharging of a Vomicæ into the pleural sac.

In some few cases, Empyema has been caused by the discharge of an abscess of the Liver.

#### Section 4th.

The existence of a fluid in the cavity of the chest may be ascertained by an exam.





ination by succussion. Percussion and Auscultation in conjunction with the signs that usually are presented.

By succussion or shaking the body, a fluctuation is perceptible, which is more or less distinct in proportion to the extent of effusion.

Instead of the resonant sound which the Thorax emits by percussion in a healthfull condition of its viscera, a dull, obscure sound is produced by this mode of investigation.

In Auscultation it will be observed, that the noise occasioned by the entrance and exit of the air into and out of the air cells of the lungs, which is called the respiratory murmur, is deficient, as also the vibration that is imparted to the parietes of the chest in speaking or singing.

Two other circumstances worthy of attention are the following. The difficulty of breath-



ing is very much aggravated by the recumbent position of the body or by pressure exerted on the abdomen, and the inspiration is performed with less facility and convenience than the expiration.

With the presence of all these signs however, Empyema is not certainly known, since they are concomitant in many other affections. To arrive, therefore at a just conclusion in the diagnosis, it will be necessary to investigate an enquiring into the history of the case. If it be Empyema, the effusion will have been preceded by those constitutional symptoms which characterize the evolution of inflammation or the production of pus, the least equivocal of which is the occurrence of rigors; "it is a law of our nature says Dr Thomson that rigors of longer or shorter duration, and of greater or less degrees of intensity, usually accompany the production



of pus in all the organs and regions in which  
it is formed

### Section 5th.

The method of treating Empyema has  
been by evacuating the matter by an opening  
through the parietes of the Thorax, on the prin-  
ciple of a common abscess. The want of success,  
however, that has generally attended this plan  
of treatment, affords little encouragement for  
its employment, further, than the removal of  
the symptoms may demand. Opening as a  
palliative measure. Few instances are on re-  
cord when a recovery has succeeded the operation  
of Empyema; in almost every case the disease  
is hastened on to a fatal issue by reason of the  
violence of the constitutional symptoms.

An opinion is entertained by medical men  
that the presence of the pus is the only



even to the expansion of the lung, and  
were it removed, a cure would ensue, by the lung  
coming in contact with the chest and forming  
adhesions. The improbability, however, of such an  
event is clearly demonstrated by examinations  
after death, when it is discovered, that the lung  
is enveloped, by an adventitious membrane of such  
density of structure, that no effort of this organ  
at expansion could overcome its resistance, did it  
always retain its aptness for inflation; which  
it does not, partaking generally more or less in  
the morbid action.

Others, aware perhaps of the impracticability  
of this mode of cure, and under the impres-  
sion of obliteration, by the granulation process, a  
cavity intolerable to the animal economy, have  
after evacuating the matter, resorted to the use  
of astringent injections. This practice appears  
to me decidedly useless, since we are taught that





that serous membrane never granulates, and evidently pernicious, as it tends by exciting a new degree of irritation, to increase the discharge and a day too profuse.

The mode by which nature endeavours to effect a cure after the removal of the matter is as before stated by a contraction from the circumference of the cavity towards its centre. It would therefore appear reasonable, that by the operation of Emphysema we might assist her in the design and ultimately effect a cure; but generally before this end can be accomplished, the patient is worn out by constitutional irritation and death terminates his sufferings.

Entertaining these views of the disease drawn from the experience of others, I am inclined to the opinion, that the operation should be deferred until that period, when the quantity of fluid becomes so great as to impede materially,



the function of respiration by its mechanical action, and mitigate the approach of death from suffocation. Here, it must be considered inevitable, consistently with the protraction of life and consequently should be resorted to as the only alternative.

### Section 6th.

The place usually selected for the operation is between the sixth and seventh rib and equidistant from the sternum and spinal column.

This perhaps under ordinary circumstances will be found the most advantageous situation for the opening; yet, there are certain conditions of the parts that may lead to the adoption of some other point. If a prominence exist on any part caused by the pointing of the ribs, then we are advised to make the opening. We may also be directed to a particular spot says Mr



Charles Bell by the long continuance of a fixed pain. It sometimes happens, that the Diaphragm has formed adhesions with the costal pleura, as high as the space mentioned as being usually selected, for the operation, in such a state of things, were the operation performed at this point, it would not only be ineffectual in affording an exit to the matter, but injury might result from protruding the instrument into the Abdominal cavity.

It would appear, therefore, that no fixed place can be laid down for the operation, but that one must always be decided on from the peculiar state of each case.

When a point has been determined on a large size Trocar will make an opening sufficiently large, where the escape of matter only is required; but in those cases where there is reason to suspect the presence of some foreign substance



it will be necessary to use a scalpel, that the substance may be removed also. "In four or five cases" says Professor Gibson "I have succeeded in floating out along with the matter, pieces of cloth and bits of exfoliating ribs, by throwing in injections of tepid milk and water."

Having thus evacuated the matter, and thereby alleviated the sufferings of patient in some degree, as much is accomplished as can be hoped for, the orifice should therefor be closed and healed by the first intention, while the patients system is supported by a nourishing diet and the whole tonic plan of treatment.

